

Memorandum

EP 64-318

DATE: 11 December 1964

TO : The Files: Contract 684, Task Order 7

25X1A9a FROM : Mr. [REDACTED]

SUBJECT: Trip Report - OS-12 Stable Variable Frequency Oscillator with [REDACTED]

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1. Project Description:

The OS-12 is a compact, stable variable frequency oscillator. It has a frequency range of 2-30 Mc, spurious output of -65 db, and an accuracy of ± 1000 cps. The output power (1.0 V across 200 ohms) is 5.0 mw and the input power at 12 ($\pm 10\%$) is 216 mw. The approximate size of the OS-12 is 4" x 2" x 1".

2. Contractual Information:

- a. Initial Cost: \$40,791.00
- b. Request for Procurement Action: 18 September 1964
- c. Initiation Date: 28 October 1964
- d. Completion Date: 21 June 1965
- e. Deliverable Items: One engineering model - 28 May 1965
Monthly Reports - on/before 21 June 1965
Equipment Instruction Manuals -
on/before 21 June 1965
Final Engineering Report -
on/before 21 June 1965
One set reproducible specifications and
drawings and additional five copies of
each on/before 21 June 1965.

3. Date of Meeting: 2 December 1964**4. Place of Meeting: [REDACTED]****5. Persons Attending:**AgencyNon-Agency

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Mr. [REDACTED]

Mr. [REDACTED]

Mr. [REDACTED]

Mr. [REDACTED]

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6. Contractor's Performance: . . .

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6. Contractor's Performance:

- a. On schedule and expected to remain so: Yes
- b. Within obligated funds and expected to remain so: Yes
- c. Satisfactory technical progress: Yes

7. Project Status:

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The progress of the OS-12 was discussed with Messrs. [REDACTED] and [REDACTED] and was found to be favorable. An advance copy of [REDACTED] first monthly technical progress report was reviewed and is included as part of this trip report. The report covers the work accomplished in the period, 19 October 1964 to 19 November 1964. Effort in this period was expended on the following two tasks:

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1. The preparation of a statement of work, task matrix, and schedule.
2. The circuit design and performance evaluation of the critical circuits.

The critical circuits include the VCO-1, VCO-2, Spectrum generator, Mixer-2, IF amplifier, and the frequency/phase detector as indicated on the block diagram included as an attachment. All the critical circuits have been breadboarded and performance objectives obtained as listed in the included progress report. It would be advantageous to the reader to read the progress report at this time. This progress was verified by the undersigned.

In the interim period since the contractor's first monthly report and the date of the inspection, [REDACTED] has completed an evaluation of the frequency/phase detector which indicates that the circuit concept is satisfactory. The 66 Mc mixing frequency was derived by selecting the 22nd harmonic from the spectrum generator output (with LC filters) and tripling to 66 Mc (see block diagram).

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A 66 Mc crystal

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A 66 Mc crystal filter has also been ordered to make possible a cost versus size trade-off consideration. A similar trade-off consideration will be possible for the 150 Mc offset frequency. Mixer 3, (68 to 69 Mc-66 Mc) has now been designed and breadboarded and was also found to function satisfactorily when driven by the IF amplifier (68-69 Mc) and the 66 Mc line from the spectrum generator. All the critical circuits are now being interconnected to make possible an evaluation of the phase-locked loop. The resistor matrix for control of the VCO's is in the final design phase. The 1 Mc crystal oscillator is being tested for accuracy and stability and has met requirements thus far.

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Attachments:

1. [REDACTED] Technical Progress Report dated
2 December 1964
2. Block Diagram

Distribution:

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OC-E/R&D-EP/[REDACTED]/amw

(11 December 1964)

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ORIGINAL DOCUMENT MISSING PAGE(S):

No ATTACHMENT